High End products for simracer

The writing on this page did not go under professional revision. Please apologize for spelling and grammar mistakes; English is not my mother tongue.

The Logitech G27 dismantled in its components

The reason for this activity was to verify whether the G27 is still suitable to be converted into a JL-Wheel. The result is positive, there is no problem to convert the G27 into a JL-G27. Thank you Logitech -:-.

I took these photos from disassembling for the technology interested viewer and to give an impression to the brave people who want to repair or mod their G25/27.

After removing the steering wheel you can see the new PCB. It is fastened with two screws. The six wheel buttons are connected by two 4-pin plugs.
The new pcb has a lot of electronic components and the LED for the shift lights. Switches for the paddel shifters are the same like the G25 once.

After removing the pcb, you will find the three screws, fixing the paddel shifter unit to the steering shaft.

Red arrows showing positions of screws, holding the upper cover of the housing. Green arrows showing positions of screws, attaching the steering gear box to the bottom of the housing.
Pull at the rear side of the upper cover to remove it.

The internals of the G27 are very similar with the G25.
New on the G27, this two "pots". Explanation of its function further below.

Mechanical limitation of the rotation angle is identical with the G25. When assembling the wheel, you carefully have to watch that the position of the gear rack is exactly centered and the cam of the steering shaft is pointing exactly upwards. An error of one gear only will cause the G27/25 not beeing able to calibrate.

Here you can see the sitting of the flat spring. It eliminates the dearance between gearwheel and gear rack and is providing noise reduction.
The dismantled gear box.

The new steering shaft with the helical gear wheel. The new gear wheel is no longer made in two pieces to compensate clearance between the gears, like it has been on the G25. I don't think it has any influence while driving.
Shafts of the motors are extended by 3.5 mm. Why, you can see below.

The extended shafts of the motors are sitting in this spring supported counter bearings. This way the shafts are forced in one direction to compensate axial clearance. However when driving you can hear some clack noises when the wheel receives strong peak inputs, e.g. when driving over curbs. But the general noise from the gearbox is significant lower compared with the G25.
Motors have an additional mounting screw.

Some modifications on the motors are to be seen. I can not say whether the motors are having more power. The power IC's on the main pcb are the same type like on the G25 board.

The rotation angle sensor is the same like on the G25. Unfortunate this very good type of sensor has two weak points, which you will encounter when your wheel is loosing it's neutral position while driving.

1. The mounting screws can become loose due to the temperature range of a cold and hot motor. This is easy to repair. Just tighten the screw and use some lock tight solvent on the screws.
2. It can happen that the hub of the black wheel becomes a hair crack. The wheel then turns loose on the motor shaft.

A manual how to repair the sensor you will find here.
Finally a hint to all who removed the metal plate with the motors from the gearbox of the G25 wheel.

In difference to the G27 the G25 has a pair of two gear wheels on the steering shaft, pre loaded against each other by two springs. This is made to eliminate the play between the gears. When removing the motors, this pre load is gone.

**So before assembling the motors again, the pre load has to be restored on the gear wheels.**

For this purpose the gearbox housing has a hole on its upper front. This hole is congruent with the holes in the two gear wheels.

Assembling goes like this:
1. Turn the steering shaft until the holes of the gear wheels are almost in the same position like the hole in the gear box housing.
2. Take an e.g. 2.5 mm drill bit and put it into the hole of the gear box. Now slightly turn the steering shaft until the drill bit finds the hole of the first gear wheel. Now turn the second gear wheel anti clockwise until the drill bit moves thru both holes of the gear wheels. 
3. Now you can assemble the metal plate with the motors. After that don't forget to pull out the drill bit ;-).